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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/811,189 | 03/26/2004 | Bruce A. Hecht | A0312.70490US01 | 2956 |

7590 04/24/2006
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EXAMINER

TAN, VIBOL

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2819 | |

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/811,189

Applicant(s)

HECHT ET AL.

Examiner

Vibol Tan

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-8,10-12,16-20,24-26 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,10-12,16,17,19,20 and 28 is/are rejected.
- 7) ☒ Claim(s) 18, 24-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 6-8, 11, 12, 16 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Hecht et al. (U.S. Pat. 6,507,231).

The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

In claim 1, Hecht et al. teaches in Figs. 2 & 3, a method for operating a driver circuit, comprising: operating the driver circuit (20) at full power in a dynamic mode (when transmitting); and operating the driver circuit at reduced power in a termination mode (not transmitting), wherein operating the driver circuit at reduced power comprises reducing a slew current (29) for an output stage (24) of the driver circuit, further comprising maintaining

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an idle current (27) for the output stage at a constant level (fixed level) in the dynamic mode and in the termination mode.

In claim 2, Hecht et al. further teaches, the method as defined in claim 1, wherein operating the driver circuit at reduced power comprises reducing or turning off at least one current (all other switching transistors are off; col. 5, line 50) in the driver circuit in the termination mode.

In claim 6, Hecht et al. further teaches, the method as defined in claim 1, wherein operating the driver circuit (20) at reduced power further comprises reducing bias current (a current used to bias x1) to a reverse buffer (x1) of the driver circuit.

In claim 7, Hecht et al. further teaches, the method as defined in claim 1, wherein operating the driver circuit at reduced power further comprises reducing bias current (gate current) to a digital input circuit (Q29, Q75) of the driver circuit.

In claim 8, Hecht et al. further teaches, the method as defined in claim 1, wherein operating the driver circuit at reduced power further comprises reducing bias current to input buffers (30A, 30B) that supply programmable levels to an output stage (24) of the driver circuit.

In claim 11, Hecht et al. further teaches, the method as defined in claim 1, wherein operating the driver circuit at full power comprises selectably operating in a high state (logic 1), a low state (logic 0) or an inhibit state (high impedance) in the dynamic mode (transmitting mode).

In claim 12, Hecht et al. further teaches, the method as defined in claim 1, wherein operating the driver circuit at a reduced power comprises selectably operating in a high

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state (logic 1), a low state (logic 0) or an inhibit state (high impedance) in the termination mode (not transmitting).

Claim 16 corresponds to detailed circuitry already discussed similarly with regard to method claim 1.

Claim 28 corresponds to detailed circuitry already discussed similarly with regard to method claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hecht et al. in view of Kardash (U.S. Pat. 6,137,329).

In claim 10, Hecht et al. teaches all the claim features the method of claim 1; with the exception of teaching wherein operating the driver circuit at reduced power comprises reducing at least one bias current to the driver circuit using a current multiplier. However, Kardash teaches in Fig. 2 a current multiplier 60 is used in a controller for controlling the voltage slew-rate of a load.

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to incorporate a current multiplier, as taught by Kardash, into the device of Hecht et al. in order to control the reduction of current flow; thus reducing power.

Claim 17 corresponds to detailed circuitry already discussed similarly with regard to method claim 10.

In claim 19, Kardash further teaches the driver circuit as defined in claim 17, wherein an output current of the current multiplier is about 2 to 30 times ($K = 10$; col. 4, line 13) the control current.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hecht et al. in view of Kardash and further in view of Lau et al. (U.S. Pat. 5,146,159).

In claim 20, Hecht et al. in view of Kardash teaches all claimed feature of the driver circuit of claim 16; with the exception of teaching wherein the output circuit comprises a class AB output circuit. However, Lau et al. teaches in claim 10, the pin driver in which the predriver stage is a forward biased for class AB operation for maintaining a low quiescent current of the test signal.

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to incorporate the teachings of Hecht et al. and the teachings of Kardash and further the teachings of Lau et al. in order to maintain a low quiescent current of the test signal.

6. Claims 18 and 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 03/23/2006 have been fully considered but they are not persuasive. The Examiner believes that Hecht patent '231 teaches all claimed

features as recited in claim 1, as already discussed in detailed action above. The applicants argued that the slew current may be reduced by a factor of about 10 when the circuit is switched from dynamic mode to the termination mode; however, there is no such recitation recited in claim 1.

8. The rejection of claims 1, 2, 6-8,10-12,16, 17, 19, 20 and 28 is maintained.
9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vibol Tan whose telephone number is (571) 272-1811. The examiner can normally be reached on Monday-Friday (7:00 AM-4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached on (571) 272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



VIBOL TAN
PRIMARY EXAMINER